

REMARKS

In the Office Action mailed September 14, 2004, the Examiner rejected claims 1 to 14. The rejections are respectfully traversed. This Response "B" cancels claims 7, 8, and 9, amends claims 1 and 3, and adds no new claims. Accordingly, claims 1 to 6 and 10 to 14 are now pending in this application.

Deep-drawn plastic containers are highly developed technical products due to the fact that it is desirable to have a wall thickness that is as small as acceptable in view of container functions and handling. It is desirable to save material but weakness in the container is considered a problem. For stackable containers, there are severe problems if the containers are weak in those areas which are involved in stacking. The rim area with the first and second ledges and the intermediate support should be as stiff as possible. Furthermore, the first and second ledges should overlap as much as possible in order to have the weight of the stack supported on a sufficient overlapping area and to be sure that a container that shifts aside does not shift down. Moreover, the supporting area between the ledges should be rigid in order to avoid bending within a stack or bouncing and swinging of a stack when put down during handling. See paragraph 0021 of the specification.

In the present invention, the upper flange rim (12) of the rim area (2) has a very strong wall by nature since this flange retains at or near the original thickness of the foil to be deep drawn when producing the deep-drawn container. This was specifically set forth in original claim 9. High stiffness against vertical loads is not only obtained in the upper flange rim (12) and the intermediate support are (9) but also by the second ledge (8). This was specifically set forth in original claim 7.

Obtaining high stiffness in the vertical/axial direction as heretofore resulted in high stiffness in the cross-sectional or radial direction resulting in a disadvantage when trying to remove the container from a mold, at least when the overlapping area between the first and second ledges is desirably enlarged. One should take into account that the overlapping of the ledges may be only 1 mm or less but any enlargement in this respect results in a stronger support

of the stack and in better stacking on one hand but in problems in getting the container out of the mold on the other hand. In the present invention, however, obtaining a softened stiffness in the cross-section/radial direction does not adversely affect the high stiffness in the vertical direction. The presently claimed container shape gives a high vertical/axial stiffness for stacking and a good yielding in the cross-section/radial direction to release the container from a mold after deep drawing.

Claims 1 to 8, 10 to 14 were rejected under 35 U.S.C. 102(b) as anticipated by Shapiro et al. (US 3,288,340). The Examiner stated that “the intermediate support area (Shapiro #38a) having a wave shape at least at one of the first and second ends which softens a cross-sectional stiffness of the rim area for improved removal from the mold (Shapiro Fig. 6 #46a and 45a and Col. 4 Line 29-40).”

In Figures, 6 to 9, Shapiro et al. discloses a nestable plastic drinking cup having upwardly extending fingers which form a platform or first ledge (42a) for supporting a second ledge (40a) of a cup nested within it. The fingers enable the cup to flex to a greater extent in the axial direction. The aim is to reduce the space of a stack of containers by compressing the stack and to lock the containers in the compressed stack against each other. It should be appreciated that this is opposite of what the present invention attempts to achieve. As discussed above, the present invention attempts to soften stiffness in the cross-sectional/radial direction without affecting high stiffness in the vertical/axial direction.

It is also of note that when addressing claim 7, the Examiner indicated that “Shapiro teaches the second ledge (Shapiro #40a) has a contour matching the wave shape of the intermediate support area.” Applicant respectfully disagrees. The fingers (45a, 46a) clearly do not extend down to the lower shoulder (40a). Thus, the contour of both the inner and outer edges of the lower ledge (40a) is round or circular which does not match the “wave shape” of the intermediate support area. This is in stark contrast to second ledge (8) of the present invention which has a contour matching the wave shape of the intermediate support area (9). As seen in figures 2 and 3 of the present application, the outer edge of the second ledge (8) has a wave shape which matches the wave shape of the intermediate support area (9).

Independent claim 1 has been amended to include the subject matter of original claims 7, 8, and 9. Claim 1 is allowable because it requires that “the intermediate support area (9) has a wave shape at least at one of the first and second ends which softens a cross-sectional stiffness of the rim area for improved removal from a deep drawing mold” and that “the second ledge (8) has a contour matching the wave shape of the intermediate support area (9) and overlaps in a plan view radially at least most of a radial width of the first ledge (7)”. No prior art of record reasonably discloses or suggests the present invention as now defined by claim 1. Claims dependent from independent claim 1 are also allowable as depending from an allowable claim and independently allowable for novel and nonobvious matter contained therein. For example, claim 14 points out that “the wave shape softens the cross-sectional stiffness of the rim area but does not soften a longitudinal stiffness of the rim area.” Reconsideration and withdrawal of the rejection is requested.

Claims 1, 3 to 8, and 11 to 14 were rejected under 35 U.S.C. 102(b) as anticipated by Lee et al. (US D256,682).

Lee et al. discloses a plant container. Lee et al. is silent as to whether it is plastic, whether it is deep-drawn, and whether it is stackable. The illustrated shape having an inwardly bent upper rim and the illustrated ornamental details is not likely to be formed by deep-drawing. This plant container is most likely formed by plastic injection molding or formed from tin or other non-plastic materials. The disclosure offers no technical aspects but only ornamental features. Lee et al. teaches nothing about stiffness in any direction. As discussed above, the present invention attempts to soften stiffness in the cross-sectional/radial direction without affecting high stiffness in the vertical/axial direction.

It is also of note that when addressing claim 7, the Examiner indicated that “Lee teaches the second ledge has a contour matching the wave shape of the intermediate support area.” Applicant respectfully disagrees. The contour of both the inner and outer edges of the lower ledge is round or circular which does not match the “wave shape” of the intermediate support area. This is in stark contrast to second ledge (8) of the present invention which has a contour

matching the wave shape of the intermediate support area (9). As seen in figures 2 and 3 of the present application, the outer edge of the second ledge (8) has a wave shape which matches the wave shape of the intermediate support are (9).

Independent claim 1 has been amended to include the subject matter of original claims 7, 8, and 9. Claim 1 is now allowable because it requires that “the intermediate support area (9) has a wave shape at least at one of the first and second ends which softens a cross-sectional stiffness of the rim area for improved removal from a deep drawing mold” and that “the second ledge (8) has a contour matching the wave shape of the intermediate support area (9) and overlaps in a plan view radially at least most of a radial width of the first ledge (7)”. No prior art of record reasonably discloses or suggests the present invention as now defined by claim 1. Claims dependent from independent claim 1 are also allowable as depending from an allowable claim and independently allowable for novel an nonobvious matter contained therein. For example, claim 14 points out that “the wave shape softens the cross-sectional stiffness of the rim area but does not soften a longitudinal stiffness of the rim area.” Reconsideration and withdrawal of the rejection is requested.

Claim 9 was rejected under 35 U.S.C. 103(a) as unpatentable over Shapiro et al. (US 3,288,340) in view of Pearce-Smith (GB 859,964). The examiner stated that “Shapiro is silent on the upper flange rim has a wall thickness that is greater than a wall thickness of remaining parts of the plastic container” and “Pharce-Smith teaches a plant pot rim with a greater thickness then the container thickness (Pharce-Smith Fig 4 #4).” The examiner also stated that “it would have been obvious to one of ordinary skill in the art to modify the teachings at the time of the invention since the modification is merely an engineering design choice selected to enhance the strength of the rim to prevent undesirable bending when transporting a full/heavy container.”

The subject matter of original claim has been cancelled and inserted into independent claim 1 which is allowable as discussed above. Reconsideration and withdrawal of the rejection is requested.

Claim 2 was rejected under 35 U.S.C. 103(a) as unpatentable over Lee et al. (US D256,682). The examiner stated that “Lee is silent on the wave shape of the intermediate support area is a rectangular wave shape.” The examiner also stated that “it would have been obvious to one of ordinary skill in the art to modify the teachings at the time of the invention since the modification is merely an artistic/aesthetic design choice to enhance visual appeal.

Claim 2 is allowable as depending from allowable independent claim 1 as discussed above and for novel and nonobvious matter contained therein. Reconsideration and withdrawal of the rejection is requested.

Claim 9 was rejected under 35 U.S.C. 103(a) as unpatentable over Lee et al. (US D256,682) in view of Pearce-Smith (GB 859,964). The examiner stated that “Lee is silent on the upper flange rim has a wall thickness that is greater than a wall thickness of remaining parts of the plastic container” and “Pharce-Smith teaches a plant pot rim with a greater thickness than the container thickness (Pharce-Smith Fig 4 #4).” The examiner also stated that “it would have been obvious to one of ordinary skill in the art to modify the teachings at the time of the invention since the modification is merely an engineering design choice selected to enhance the strength of the rim to prevent undesirable bending when transporting a full/heavy container.”

The subject matter of original claim has been cancelled and inserted into independent claim 1 which is allowable as discussed above. Reconsideration and withdrawal of the rejection is requested.

Claims 1 to 14 were rejected under 35 U.S.C. 103(a) as unpatentable over Berlit (EP 65108 A1) in view of Caine (US 3,045,887). The examiner stated that “Berlit is silent on the intermediate support area (Berlit #21) having a wave shape at least at one of the first and second ends” and “Caine teaches a plant pot container with an intermediate support area having a wave shape (Caine #262) which softens a cross-sectional stiffness of the rim.” The examiner also stated that “it would have been obvious to one of ordinary skill in the art to modify the teachings at the time of the invention since for the nesting advantages taught by Caine.”

Berlit discloses a deep-drawn plant pot having the preferred Z-form for stapling the ledges (22, 24) and the intermediate support area (21), wherein the ledges overlap in a plan view. It is well known that this geometry has relatively high stiffness in a vertical direction, which is preferred for stapling. It is also well known that this geometry has relatively high stiffness in a radial direction, which is not desired because it leads to problems in getting the pot out of the form after deep drawing due to the undercut.

Caine discloses nestable plastic drinking cups having corrugations in an intermediate portion to permit the flow of air through the corrugations when the cups are nested and resting and the only contact being the corrugations of one cup resting on top of the corrugations of another cup. The aim of the corrugations is to permit easy separation of the nested cups in a dispensing machine (due to the air flow) and to reduce transfer of heat between the cup and a person's hand holding the cup due to reduced contact area. Caine is silent as to whether the corrugations soften stiffness in either the radial direction or the axial direction. Caine only states that the cup is sufficiently rigid to be readily dispensed from automatic dispensing machines and to be held by a drinker without danger of collapsing. As discussed above, the present invention attempts to soften stiffness in the cross-sectional/radial direction without affecting high stiffness in the vertical/axial direction.

Independent claim 1 has been amended to include the subject matter of original claims 7, 8, and 9. Claim 1 is now allowable because it requires that "the intermediate support area (9) has a wave shape at least at one of the first and second ends which softens a cross-sectional stiffness of the rim area for improved removal from a deep drawing mold" and that "the second ledge (8) has a contour matching the wave shape of the intermediate support area (9) and overlaps in a plan view radially at least most of a radial width of the first ledge (7)". No prior art of record reasonably discloses or suggests the present invention as now defined by claim 1. Claims dependent from independent claim 1 are also allowable as depending from an allowable claim and independently allowable for novel and nonobvious matter contained therein. For example, claim 14 points out that "the wave shape softens the cross-sectional stiffness of the rim area but does not soften a longitudinal stiffness of the rim area." Reconsideration and withdrawal of the rejection is requested.

In light of the foregoing, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is found that that the present amendment does not place the application in a condition for allowance, applicant's undersigned attorney requests that the examiner initiate a telephone interview to expedite prosecution of the application.

If there are any fees resulting from this communication, please charge same to our Deposit Account No. 16-2326.

Respectfully submitted,

PORTER, WRIGHT, MORRIS & ARTHUR LLP

December 1, 2004



Richard M. Mescher, Reg. No. 38,242

Porter, Wright, Morris & Arthur
41 South High Street
Columbus, OH 43215-6194